

What is claimed is:

1        1. An electrical switchgear device comprising:  
2              a conductor;  
3              a base;  
4              a current sensor positioned to detect current in the conductor and attached to the base  
5 with a support element;  
6              an apparatus mounted to the base to interrupt current through the conductor when a  
7 signal from the current sensor indicates a predetermined condition; and  
8              a housing positioned on the base and encapsulating the current sensor, the support  
9 element, the current interrupting apparatus, and the conductor.

1        2. The device of claim 1 wherein the housing comprises a solid insulating  
2 material.

1        3. The device of claim 1 wherein the support element comprises a rigid tube.

1        4. The device of claim 1 wherein the support element is bent at an end coupled  
2 to the current sensor.

1        5. The device of claim 4 wherein the bent end of the support element includes a  
2 support strip shaped to match a curvature of the current sensor.

1        6. The device of claim 1 wherein the current sensor includes a sensor conductor  
2 that produces the signal.

1        7. The device of claim 6 wherein the support element is hollow and the sensor  
2 conductor is drawn through the support element to control circuitry.

1        8. The device of claim 6 wherein the sensor conductor and the support element,  
2 are hermetically sealed.

1       9.     The device of claim 1 wherein the support element is hermetically sealed to  
2     the base.

1       10.    The device of claim 1 wherein the support element is metallic.

1       11.    The device of claim 1 wherein the support element is non-metallic.

1       12.    The device of claim 1 wherein the support element is coated with a semi-  
2     conductive paint.

1       13.    The device of claim 1 wherein the housing encapsulates the current sensor, the  
2     support element, the current interrupting apparatus, and the conductor such that there are no  
3     dielectric interfaces between the current sensor and the conductor that could lead to a  
4     dielectric failure.

1       14.    A method of producing an electrical switchgear device, the method  
2     comprising:

3           securing a support element to a current sensor;  
4           mounting the current sensor relative to a main conductor by securing the support  
5     element to a surface of a mold that houses a current interrupter and the conductor;  
6           injecting a prepared material into the mold to encapsulate the support element, the  
7     current sensor, the conductor, and the current interrupter; and  
8           permitting the injected material to solidify to form a housing.

1       15.    The method of claim 14 wherein securing the support element to the current  
2     sensor includes drawing sensor conductors from the current sensor through a hollow passage  
3     of the support element.

1       16.    The method of claim 14 wherein securing the support element to the current  
2     sensor includes bending a first end of the support element and attaching to the first end a  
3     support strip shaped to match a curvature of the current sensor.

1       17. The method of claim 16 wherein securing the support element to the current  
2 sensor includes securing the support strip to the current sensor.

1       18. The method of claim 14 wherein securing the support element to the surface  
2 of the mold includes connecting a second end of the support element to a post positioned at  
3 the surface of the mold.

1       19. The method of claim 18 wherein connecting the second end of the support  
2 element to the post includes hermetically sealing the second end to the post.

1       20. The method of claim 18 wherein connecting the second end of the support  
2 element to the post includes drawing sensor conductors from the current sensor through a  
3 hollow passage of the post.

1       21. The method of claim 14 further comprising removing the mold from the  
2 housing and securing the housing to a tank that houses additional components.

1       22. The device of claim 14 wherein the housing encapsulates the current sensor,  
2 the support element, the current interrupter, and the conductor such that there are no  
3 dielectric interfaces between the current sensor and the conductor that could lead to a  
4 dielectric failure.